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BACK-YARD  
POULTRY KEEPING



**I**N every household, no matter how economical the housewife, there is a certain amount of table scraps and kitchen waste which has feeding value but which, if not fed, finds its way into the garbage pail.

Poultry is the only class of domestic animals which is suitable for converting this waste material, right where it is produced in the city, into wholesome and nutritious food in the form of eggs and poultry meat.

Each hen in her pullet year should produce 10 dozen eggs. The average size of the back-yard flock should be at least 10 hens. Thus, each flock would produce in a year 100 dozen of eggs which, at the conservative value of 40 cents a dozen, would be worth \$40.

By keeping a back-yard poultry flock the family would not only help in reducing the cost of living but would have eggs of a quality and freshness which are often difficult to obtain.

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# BACK-YARD POULTRY KEEPING.

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## ADVANTAGES OF HOME POULTRY.

The keeping of a small flock of laying hens on a town or village lot or in a city back yard is an important branch of poultry keeping. Though the value of the product from each flock is small of itself

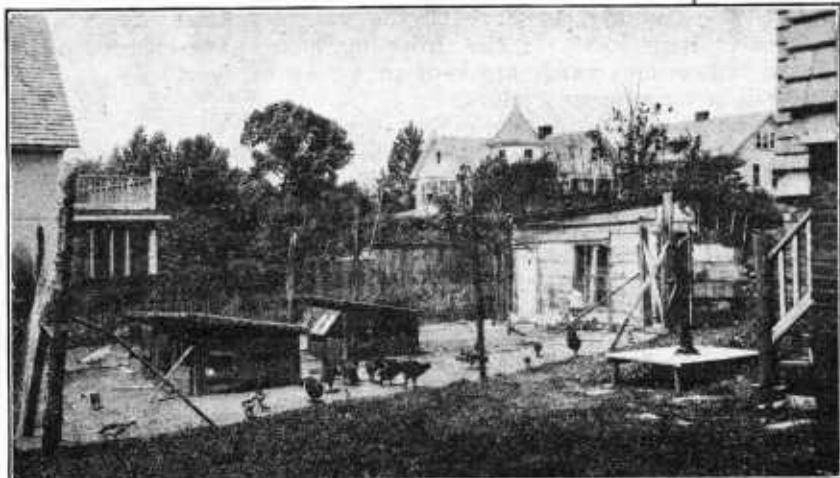


FIG. 1.—Poultry house and run in a back yard.

the aggregate is large. The eggs and fowls from such a flock may be produced at a relatively low cost, because of the possibility of utilizing table scraps and kitchen waste which otherwise would be thrown away. A small flock of hens, even as few as six or eight, should produce eggs enough, when used economically, for a family of four or five persons throughout the year, except during the molting period of the fall and early winter. By the preservation of surplus eggs

<sup>1</sup> Mr. Slocum resigned Aug. 11, 1921. This bulletin was revised by Alfred R. Lee, poultryman, Animal Husbandry Division.

laid during the spring and early summer this period of scarcity can be provided for. The keeping of pullets instead of hens also will insure the production of eggs at that time. Not only will the eggs from the home flock materially reduce the cost of living, but the superior freshness and quality of the eggs are in themselves well worth the effort expended. Eggs are a highly nutritious food and are so widely used as to be almost indispensable, and an occasional chicken dinner is relished by every one.

Where conditions render it feasible and cheap, small flocks of poultry should be kept to a greater extent than at present by families in villages and towns, and especially in the suburbs of large cities. The need for this extension of poultry raising is particularly great in those sections where the consumption of poultry products exceeds the production, with the result that prices are high.

### **OVERCOMING OBJECTIONS TO KEEPING POULTRY IN THE CITY.**

Objection is frequently raised to the keeping of poultry in towns and cities because of the odor which may result and also because of the noise which is made by roosters crowing, particularly in the early morning. In some cases city regulations have been formulated to prevent or to control poultry keeping. Where there are city regulations it is necessary to find out their provisions and to conform to them. There is no necessity for the poultry flock to become a nuisance to neighbors. If the dropping boards are cleaned daily and the houses and yards are kept in a reasonably clean condition there will be no annoying odors.

The male bird need not be a nuisance. Unless it is intended to hatch chickens from the flock it is unnecessary to keep a male bird. The fact that there is no male in the flock will have absolutely no effect on the number of eggs laid by the hens. If it is desired to mate the hens and to hatch chicks the male bird should be disposed of just as soon as the hatching season is over. This is desirable not only to eliminate noise, but also to save the feed that the male would eat and to produce infertile eggs, which keep much better than fertile eggs and consequently are superior for preserving or for market.

The flock must be kept confined; otherwise the hens will stray into neighbors' yards and gardens, where they may cause damage and are almost sure to cause ill feeling.

### **KIND OF FOWLS TO KEEP.**

Householders usually desire not only eggs for the table and for cooking, but also an occasional chicken to eat. For this reason one of the general-purpose breeds, such as the Plymouth Rock, Wyandotte, Rhode Island Red, Orpington, or Jersey Black Giant, is preferable to the smaller egg breeds, such as the Leghorn. Not only do the mature fowls of those breeds, because of their larger size, make better table fowls than the Leghorns, but the young chickens for the same reason make better friers and roasters, whereas chickens of the egg breeds are only suitable for the smaller broilers. The general-purpose breeds are also "broody" breeds, the hens making good sitters and mothers, which is a decided advantage when chickens are to be

hatched and raised. The hens of the egg breeds seldom "go broody" and are in any event rather unreliable sitters and mothers. If, however, the production of eggs outweighs the desire for an occasional table fowl, the lighter egg breeds undoubtedly will be found better, because they lay as many eggs and do so on less feed, with the result that they produce the eggs more cheaply. It is by all means advisable to keep some pure breed or variety. Where this is done, sales at a profitable figure can often be made of breeding stock or of eggs for hatching.

### SIZE OF FLOCK.

The size of the flock which can be most efficiently kept will depend first of all upon the space available and, secondly, upon the amount of table scraps or other waste which is available for feed. It is a mistake to overstock the available space. Better results will be ob-

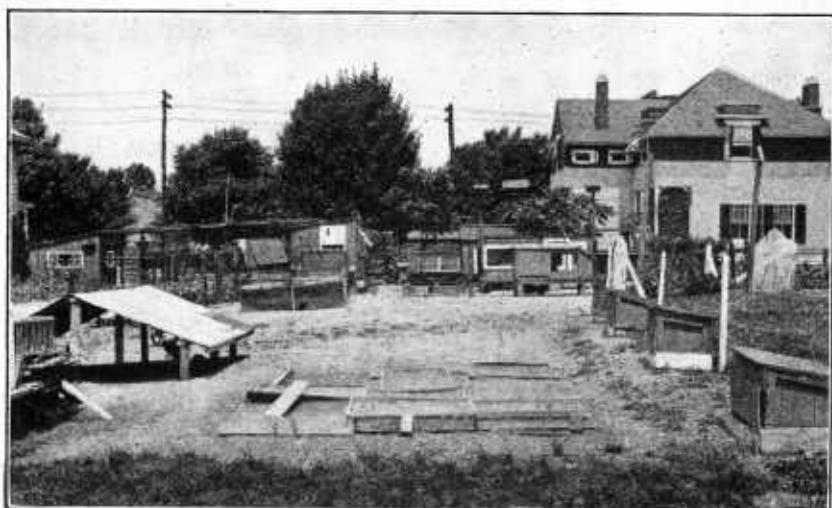


FIG. 2.—A back-yard poultry plant. In the background are the poultry houses set up off the ground on account of rats. At the left is a shade made of wooden strips and roofing paper. At the right are the coops for the hens and chicks. In the foreground oats for green feed are being sprouted under wire screens.

tained from a few hens in a small yard than from a larger number. The back-yard poultry flock rarely will consist of over 20 or 25 hens and in many cases of not more than 8 or 10, or occasionally of only 3 or 4. For a flock of 20 to 25 hens a space of not less than 25 by 30 feet should be available for a yard. Where less space is available, the size of the flock should be reduced, allowing on the average 20 to 30 square feet per bird. A few hens are sometimes kept successfully with a smaller yard allowance than this, but if the space is available a yard of the size indicated should be used.

### PROCURING STOCK.

The best way for the city poultry keeper to procure stock is either to purchase it in the fall or to buy day-old chicks or hatching eggs. An effort should be made to obtain pullets rather than older hens, and the

pullets selected should be well matured, so that they will begin to lay before the cold weather sets in. Evidences of the maturity of pullets are the development and red color of the comb and a size and growth which are good for the breed or variety. Day-old chicks are sold extensively throughout the country and can be obtained in any number desired at moderate prices. It is not so desirable for the suburban poultry keeper to purchase eggs for hatching, although this is done successfully by some persons. The raising of small chicks, especially under congested conditions or where very little ground is available, is much more difficult than rearing them where one has free range or large yards. Growing chicks should have plenty of green feed, which is best supplied by a good grass range. When 200 or more day-old chicks are bought the only extra equipment required is a stove brooder, as all the chicks can be purchased at one time. If a smaller number

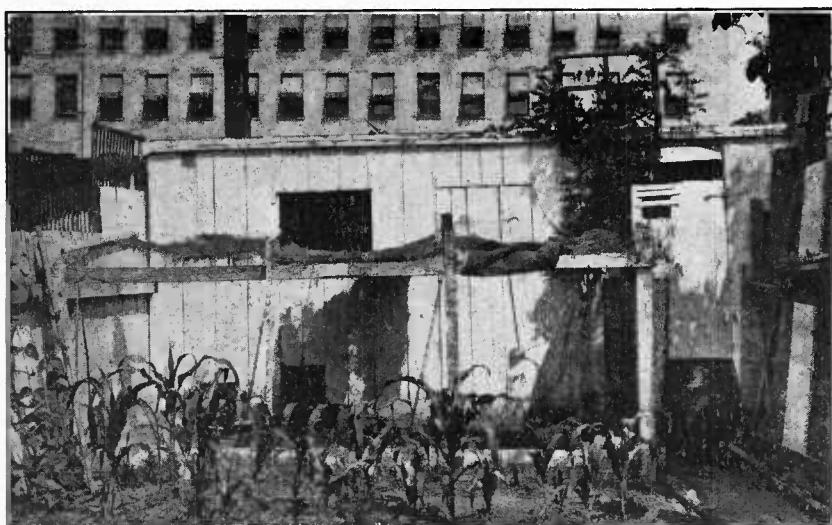


FIG. 3.—A shed in the heart of the city, utilized for a poultry house. While a larger opening in the front would admit more light and make a more suitable henhouse, the fowls kept here have done very well. The wire netting used for the yard was purchased very cheaply at an auction. The grass and sacks shown on the top of the run are used to furnish shade.

of chicks are to be raised it is usually preferable to raise them with hens.

When pullets are to be purchased, it is well, if possible, to go to some farmer or poultryman who may be known to the prospective purchaser. Often the local poultry associations are glad to help the prospective poultry keeper to get stock by putting him in communication with some of its members having stock for sale. Sometimes the local board of trade or chamber of commerce is glad to bring together the prospective purchaser and the poultry raiser.

#### HOUSING.

The flock should be comfortably but not expensively housed. A house which provides a floor space of 3 or 4 square feet per bird is ample for the purpose, and fowls are often successfully kept with

an allowance no greater than  $2\frac{1}{2}$  to 3 square feet. Houses must be dry and free from draft, but must allow ventilation. Often there is an unused shed or small building on the place which can easily be converted into a chicken house. (See Fig. 3.) The front of the poultry house should face toward the south, if possible, so that the sun will shine into it. Where there is a board fence it is sometimes possible to take advantage of this by building the poultry house in the corner of the fence, and making the fence itself, with the cracks covered by strips or battened, serve as the back and one side of the house. (See Fig. 4.) Perfectly satisfactory houses can be made cheaply from piano boxes or other packing cases. Two piano boxes with backs removed can be nailed together and a door cut in one end. These boxes should be covered with roofing paper in order to

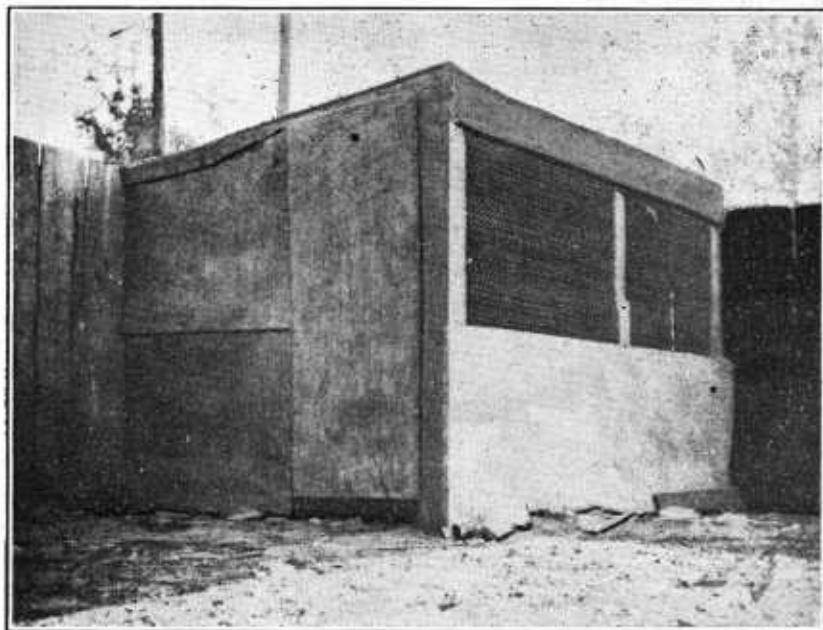


FIG. 4.—Poultry house built in the corner of a board fence, utilizing the fence for the back and one side of the house.

keep the house dry and to make it wind-proof. A portion of the door should be left open or covered with a piece of muslin, so as to allow ventilation. (See Figs. 5 and 6.) Similar houses can be constructed of packing cases at a relatively small cost. A small amount of 2 by 4 or 2 by 3 lumber can be purchased for framing. The box boards can be applied for siding or sheathing and then covered with roofing paper.

A cheap house 8 by 8 feet square can be made of 2 by 4's and wide boards. Plans for such a house are given in Figure 7. The 2 by 4's are used for sills, plates, corner posts, and 3 rafters. No studding is required except that necessary to frame the door and window space. The boards are run up and down and add sufficient stiffness to the house. They are used also for the roof and covered with roofing paper. The back and sides of the house also can be

covered with roofing paper, or the cracks can be covered with wooden battens or strips  $1\frac{1}{2}$  to 3 inches wide. In the front of the house should be left a window or opening that can be closed, when desired, by a muslin screen or curtain, which serves as a protection against bad weather but allows ventilation. In the side a door should be provided which will allow entrance. A shed or single-slope roof is most practical because easiest to build. A height of 6 feet in front and 4 feet in the rear is ample. If desired, the house may be built higher, so that it is more convenient to work in; the increase in cost will be slight. The ventilator in the rear is not needed in the northern part of the country, but is desirable in the South.



FIG. 5.—Poultry houses, each of which is made out of two piano boxes. The two boxes are placed back to back, 3 feet apart, the back and top of each removed, a frame for roof and floor added, and the part between the two boxes built in with the boards removed from the boxes. The whole is covered with roofing paper. With piano boxes at \$3 each, such a house can be easily and quickly constructed for \$12.50. It will accommodate 12 hens comfortably.

Such a house is large enough for a flock of 20 hens. It can be built quickly and easily and is cheap in construction. The material required is as follows:

#### BILL OF MATERIAL.

##### Framing.

Roof rafters and end plates, 5 pieces, 2 by 4 inches by 8 feet long.

Roof plates, 2 pieces, 2 by 4 inches by 8 feet long.

Sills, 4 pieces, 2 by 4 inches by 8 feet long.

Posts, 3 pieces, 2 by 4 inches by 6 feet long; 2 pieces 2 by 4 inches by 4 feet long.

Stringer, 1 piece, 2 by 4 inches by 8 feet long.

Total pieces required to cut list:

7 pieces 2 by 4 inches by 16 feet long.

1 piece 2 by 4 inches by 12 feet long.

Total feet in board measure, 83.

**Roosts and Dropping Board.**

- 1 piece 2 by 3 inches by 16 feet long.
- 1 piece 2 by 3 inches by 10 feet long.  
Total board measure, 13 feet.
- 2 pieces 1 by 12 inches by 16 feet long.  
Total board measure, 32 feet.

**Sheathing Boards.**

- Roof, 5 pieces 1 by 12 inches by 16 feet long.
- Two sides, 2 pieces 1 by 12 inches by 10 feet long; 3 pieces 1 by 12 inches by 12 feet long; 2 pieces 1 by 12 inches by 14 feet long.
- Front, 2 pieces 1 by 12 inches by 10 feet long.
- Back, 2 pieces 1 by 12 inches by 16 feet long.  
Total feet in board measure, 216.



FIG. 6.—Good type of simple shed-roof house for a moderate-sized poultry flock in the suburbs.

**Batten Strips.**

- 130 linear feet  $\frac{1}{2}$  by 2 inch strips, 24 board feet.
- 24 linear feet  $\frac{3}{4}$  by 2 inch strips, for curtain frame, 4 board feet.

**Roofing.**

- 80 square feet roofing paper; nails and tins.

**Hardware and Sundries.**

- 1 pair 8-inch T hinges for door.
- 1 padlock and latch for door.
- 3 pairs 4-inch T hinges for curtain frame and rear ventilator.
- 5 pounds 10-penny wire nails for framing.
- 10 pounds 8-penny wire nails for sheathing.
- 5 pounds 4-penny wire nails for stripping.
- 21 square feet poultry wire,  $\frac{3}{4}$ -inch mesh, for front.
- 3 yards muslin for curtain.
- 32 rough bricks to build piers.

## Floor.

If floor is desired in house, add the following material:

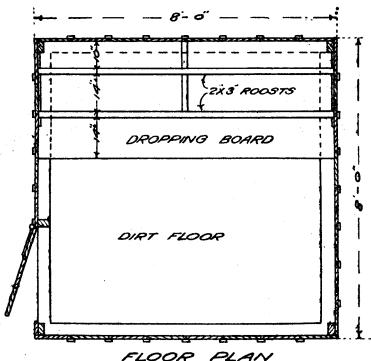
- 2 pieces 2 by 4 inches by 16 feet long.
- 4 pieces 1 by 12 inches by 16 feet long.
- Total feet in board measure, 85.

## Total Lumber Required.

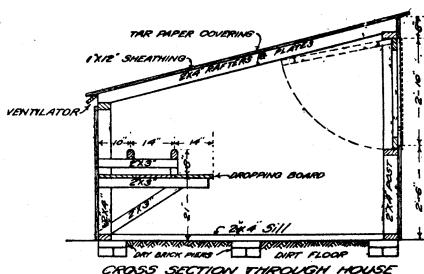
Without floor, 372 board feet.

With floor, 457 board feet.

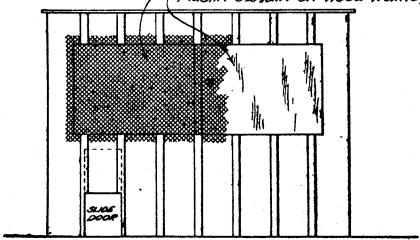
Lumber may be rough or dressed.



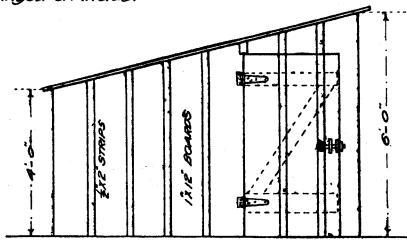
FLOOR PLAN



*Poultry wire on outside, 2' mesh.  
Muslin curtain on wood frame, hinged on inside.*



FRONT ELEVATION



END ELEVATION

FIG. 7.—Plan of a simple back-yard poultry house.

**Floor.**—If the soil is light and sandy and is always dry no floor need be used in the house. The floor should be filled up several inches above the outside ground level. A dirt floor is hard to keep clean, and if there are many buildings near by it is difficult to keep rats from being troublesome with such a floor. A dirt floor also makes the house very dusty and it can not be kept so clean as a house with a wooden floor. Three or 4 inches of the surface of the floor and a thin layer of the soil of the run, if a very small run is used, should be removed and replaced with fresh dirt two or three times a year. A board floor is the most practical type of floor for most small poultry houses, as it is absolutely dry and is easy to keep clean. A concrete floor may also be used but is more expensive and is not so desirable in the small poultry house, as it may be necessary sometimes to move the house. A house with a board floor should be set on posts or blocks so that it is from 5 to 12 inches above the ground. When this space is left the floor

will not rot so quickly and rats are not so likely to take refuge under the house. (See Fig. 8.)

**Dropping boards and roosts.**—To keep the flock in a clean and sanitary condition, dropping boards should be provided under the roosts. This makes it easy to remove the droppings each morning and helps greatly to keep the house free from objectionable odors. A little sand or ashes sprinkled on the dropping board after each cleaning will make the cleaning easier.

The dropping boards and roosts should be placed against the back wall. Here they are out of the way and also are least likely to be reached by drafts. The dropping boards should be about 20 to 30 inches from the floor, depending on the height of the building. This

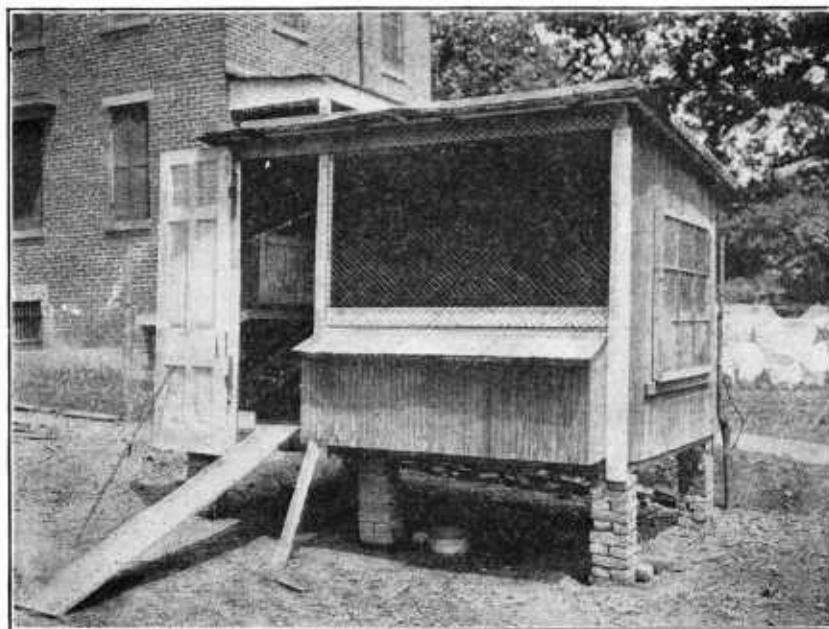


FIG. 8.—A good type of open-front poultry house for a small flock. The front can be closed with a muslin curtain on cold nights. The house is set on brick piers so as not to afford a refuge for rats. Notice the nests built out on the front of the house where the eggs can be reached by raising the hinged cover.

gives space enough under them so that the hens have room to exercise and is not too high for the heavier hens to fly up to. The roosts should be 3 or 4 inches above the dropping boards. If more than a single roost is used, they should be on the same level; otherwise all the hens will try to crowd upon the highest roost. A piece of 2 by 4 or 2 by 3, laid on edge and with the upper corners rounded off, makes a good roost. A pole, or even a piece of board 2 or 3 inches wide, may be used. If the roost is of light material and fairly long, it should be supported in the center, as well as at the ends, to prevent it from sagging badly. An allowance of 7 to 10 inches of roost space per fowl, according to the size of the birds, should be made. If more than one roost is used, they should be placed about 15 inches apart.

**Nests.**—Nests must be provided and may be very simple. Any box about 1 foot square and 5 or 6 inches deep is suitable. An ordinary orange box with the partition in the middle serves very well, each box forming two nests. The top is removed, the box laid on its side, and a strip 3 to 4 inches wide nailed across the lower front. (See Fig. 11.) Nests can be fastened against the walls of the house or set on the floor. It is preferable to fasten them against the wall, as they take too much floor space if set on the floor. One nest should be provided for each 4 or 5 hens.

The straw or other material used in the nest should be kept clean and not be allowed to get so low that the eggs when laid by the hen will strike the board bottom of the nest, as this will cause them to break and will start the hens to eating the eggs, which is a very troublesome habit and one that is difficult to break up once it is formed.

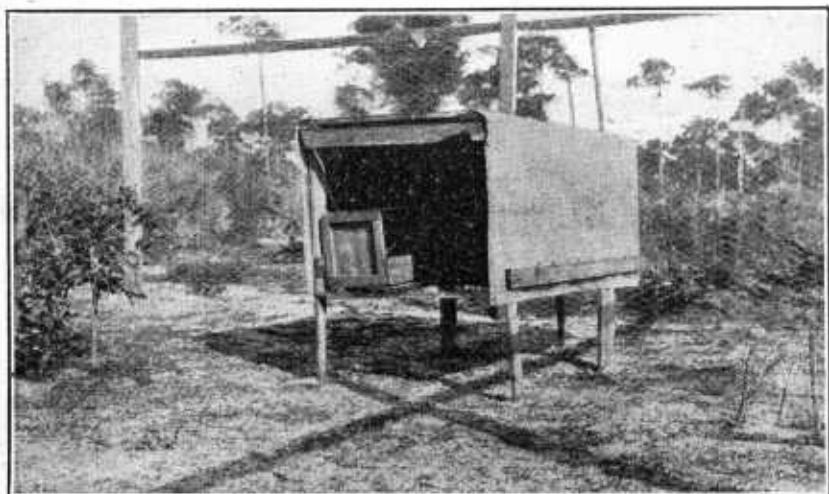


FIG. 9.—Shelter suitable for 4 or 5 hens, consisting of a lumber framework covered with roofing paper. This shelter has no floor and is provided only with roosts and nests. It is especially adapted for back yards in southern parts of the country.

**Litter.**—A litter of straw or the leaves raked up in the fall, about 3 or 4 inches deep, should be used on the floor of the house. This material helps to absorb the droppings and also provides a means of feeding the grain in such a way that the hens are obliged to exercise by scratching for it. Leaves are not nearly so desirable as straw, as they break up very quickly and make dirt and dust.

**Coops for broody hens.**—When hens become broody, they should be "broken up" as quickly as possible, for the sooner this is done the sooner they will resume laying. To break a hen of broodiness she should be confined to a small coop raised off the ground, preferably with a slat bottom. Give her plenty of water to drink, and one daily feed of a light mash. Usually from 3 to 6 days' confinement will break her, but some hens require 10 to 12 days. The broody hen will be recognized by her inclination to stay on the nest at night, the ruffling of her feathers and her picking at any one who approaches

her, and by the clucking noise she makes. The fact that her broodiness has been broken up can be recognized by the disappearance of these symptoms.

### THE YARD.

The yard should be inclosed by a wire fence. If cats prove troublesome where young chickens are being raised, it may be necessary to cover the top of the yard with wire netting. A board should not be used at the top of a wire fence, as this gives the hens a visible place to alight and tends to teach them to fly over. A 5-foot fence is high enough for most conditions. It is desirable to clip the flight feathers of one wing of all except the heavy breeds of fowls to prevent them from flying over the fence. Fowls to be used for exhibition must not be clipped, and higher fences may be necessary in that case.

The larger the yard which can be provided the better the hens will do, as it not only gives them greater opportunity to exercise, but also makes it possible to maintain a sod on the yard. In most cases not enough land will be available so that a sod can be maintained.

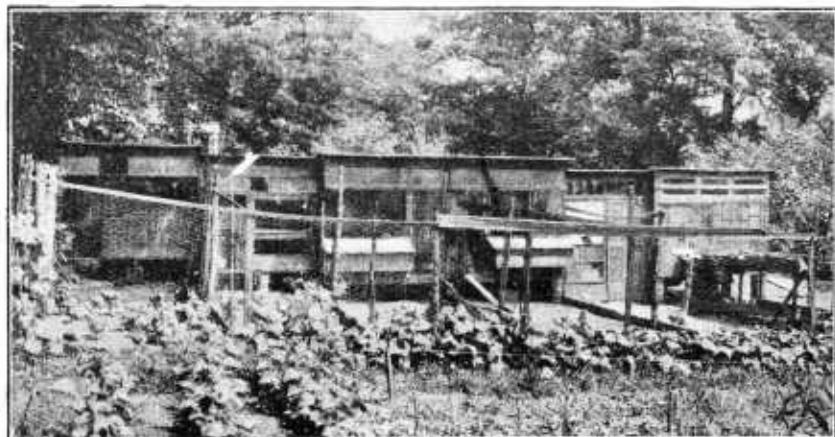


FIG. 10.—A larger poultry house suitable for a suburban lot. Notice the old lumber, sash, etc., used in the construction. The utilization of such used material, which can often be purchased for a small sum at auction or where buildings are being wrecked, lessens the cost of the poultry buildings very materially.

If the yard is fairly large, it can be divided into two parts and green crops, such as oats, wheat, rye, or dwarf Essex rape, allowed to start in one yard while the hens are confined to the other. (See Fig. 12.) The green crops should be sown very thick, and the following quantities will be found satisfactory for a yard 25 by 30 feet: Wheat,  $2\frac{3}{4}$  pounds; oats,  $1\frac{1}{2}$  pounds; rye,  $3\frac{1}{4}$  pounds; rape, 5 ounces. When the growing stuff reaches a height of 2 or 3 inches the hens can be turned upon it and the other yard be similarly sown.

Where it is inadvisable to divide the yard, it is possible to keep a supply of green stuff growing by using a wooden frame 2 or 3 inches high, covered with 1-inch-mesh wire. A frame made of 2 by 4 lumber, 6 feet long and 3 feet wide, with an additional piece across the center to support the wire when the hens stand on it, will be found desirable for a small yard. (See Fig. 13.) A part of the yard as large as

this frame is spaded up and sown, the frame placed over it, and the material allowed to grow. As soon as the green sprouts reach the wire the hens will begin to pick them off, but since they can not eat them down to the roots the sprouts will continue to grow and supply green material. This frame can be moved from place to place in the yard, and different parts cultivated.

The yard should be stirred or spaded up frequently if not in sod. This will not only tend to keep down any odors which might arise, but also allow the droppings to be absorbed into the soil more readily and therefore keep the yard in better condition for the hens.

Although it is necessary to keep the hens confined to their yard most of the time, it is sometimes possible to let them out where they may range upon the lawn for an hour or so in the evening when

some one can be at hand to watch them, or at certain seasons of the year to allow them to run in the garden plot. This will be enjoyed greatly by the hens and will be very beneficial to them.

#### FEEDING.

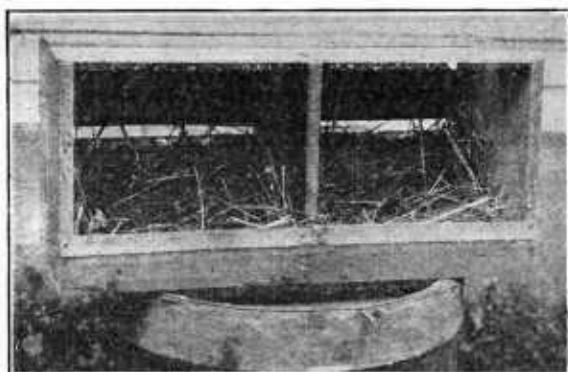
The small flock kept in the village or city back yard should be given a light feed of starch grains in the litter

Fig. 11.—An orange box converted into a double nest by

laying it on its side and nailing strips across the front to hold the nesting material in.

early in the morning, kitchen garbage or table scraps at noon, and a good feed of scratch grains late in the afternoon. If it is more convenient to feed the table scraps in the morning, they may be fed at that time, with a very light feed of scratch grains and no feed given to the hens at noon. Feed three or four times as much grain in the afternoon as is feed in the morning, and always be sure that the fowls go to roost with a full crop, especially in the winter, when the nights are long and cold.

It is often advisable to mix a small quantity of dry or moist mash with the table scraps unless one has a very abundant supply of waste products. When the family's table waste is not sufficient for feeding the flock, it is usually possible to get some of the neighbors who keep no hens to save material suitable for feeding. Keep dry mash before the hens part of the day, opening the dry-mash hopper at noon and leaving it open until they are fed the following morning. This method of feeding provides the hens always with sufficient feed but keeps them hungry during the early part of the day so that they will clean up all the table scraps available. Feed the scraps in troughs, preferably on a feeding board, especially in summer, or at least use some method whereby the troughs in which the scraps are fed and the place around them may



be kept absolutely clean. This is very important because when the waste products which the fowls do not eat get mixed with the ground the material decays and causes insanitary conditions which may result in heavy mortality in the flock.

Any waste milk should be mixed with garbage and mash. Be sure that the table or kitchen scraps are in good condition and do not contain any decayed meat or a large quantity of salt or salty meat, as these products are especially injurious to fowls. If more waste products are available than are readily eaten by the fowls it may pay to put these products through a meat or feed chopper to get them into a more palatable form so that the fowls will consume a larger quantity. With the exception of small potatoes, which should be boiled, vegetables and feeds do not need to be cooked for poultry.

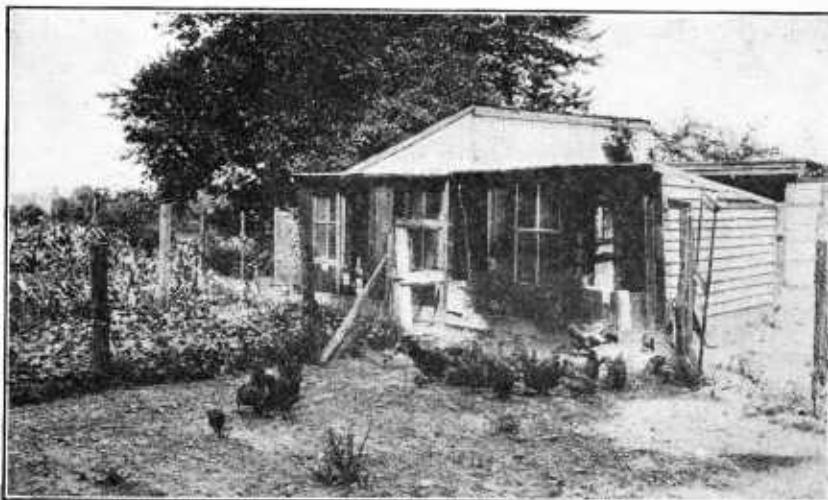


FIG. 12.—Back-yard poultry house and flock. Notice the double yard. The green crop of the first yard has been fed off and the second yard is planted to rape, which is about ready to feed.

**Rations.**—A balanced ration consists of the waste table scraps fed with a good grain mixture and a mash.

A good dry mash is composed of 2 parts by weight of corn meal and 1 part each of wheat bran, wheat middlings, and meat scrap.

Another good mash is composed of 1 pound of wheat bran, 1 pound of wheat middlings, 6.5 pounds of meat scrap, and 16.5 pounds of corn meal. The meat scrap used in the dry mash is usually the most expensive ingredient, but it is an essential part of the mash and is very efficient for egg production. It should not be eliminated or reduced unless the quantity of the meat in the table scraps is considerable or unless some other product can be substituted for it. Fish scrap, tankage, or dried milk may replace the meat scrap, or cottonseed meal may be used to replace half the meat scrap in the mash. No attempt should be made to replace more than half the meat scrap with cottonseed meal, as the results in egg production and in the quality of the eggs will be unsatisfactory.

A third good mash is composed of 1 part bran, 1 part middlings, 3 parts corn meal,  $1\frac{1}{2}$  parts meat scrap, 2 parts ground oats, with 5 pounds of linseed meal added to every hundred pounds of this mixture.

Two or more grains may be bought for the scratch feed, or a commercial scratch feed may be used. Be sure that the grain is of good quality and in good condition. Commercial mash feeds may be purchased, or the separate feeds may be bought and the mash mixed at home. Wherever sufficient feed is used to make it worth while to mix in half-ton or ton lots and a good place is available to store the feed, it may be found cheaper to mix the rations than to buy the commercial mixtures. A good grain mixture is composed of 2 parts by weight of cracked corn and 1 part oats. Another suitable grain

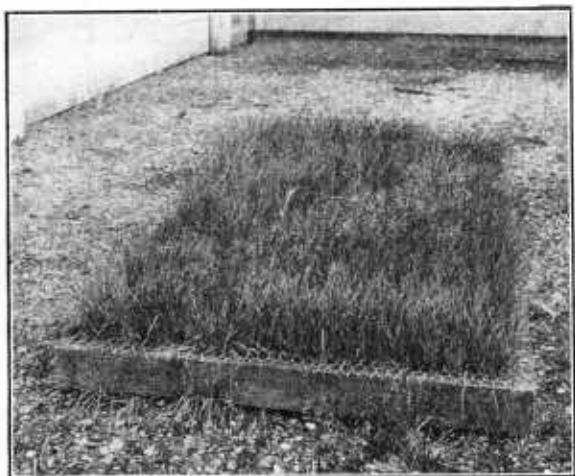
mixture for this purpose is composed of equal parts by weight of wheat, cracked corn, and oats.

A good commercial mash should contain a protein content of 15 to 20 per cent, carbohydrates 50 to 60 per cent, and fat 4 to 6 per cent, with crude fiber not exceeding 6 to 10 per cent. A good general scratch mixture should contain about the following: Protein, 8 to 10 per cent; carbohydrates, 60 to 70 per cent; fat, 2 to 4 per cent; fiber not ex-

FIG. 13.—A frame made of 2 by 4 inch lumber and covered with  $\frac{3}{8}$ -inch-mesh poultry wire used to sprout oats or other grain for the hens. The wire prevents the hens from eating the sprouts down so close as to kill the plants and from scratching out the roots. Grain which is sprouted without protection will be quickly killed.

ceeding 5 per cent. It should always be remembered that the analysis is not the only consideration, as the kind and quality of feed should also be carefully considered. Unless the feeds are well relished and palatable to the fowls and are also of good quality they will not give good results, regardless of their analysis. The feed should not be musty and should be free from moldy or shriveled grains.

**Green feed.**—Green and succulent feed should be provided. During the growing season a large supply is usually available, consisting of weeds and waste vegetables from the garden and fresh lawn clippings. The latter may also be dried or cured and stored in bags or otherwise saved until winter, when they can be soaked in warm water and fed in that condition or mixed with some of the mash or table scraps. During the summer and fall any part of the garden not used for vegetables may be sown in oats or rye and this growing green feed cut when it is from 3 to 6 inches high



and fed to the hens or to growing chickens. Where double yards are used considerable green feed can be supplied to the fowls by sowing grain four times during the year in whichever yard is vacant, alternating these yards and allowing the fowls to range on this green feed when it is from 2 to 4 inches high. Cabbages and mangel beets may be raised for use during the winter. Sprouted oats should be provided if no other green feed is available.

**Oyster shell and grit.**—Oyster shell, grit, and charcoal should always be kept before the fowls.

**Quantity to feed.**—The quantity of grain to feed depends largely on how much table scrap is available. It pays to give plenty of feed,

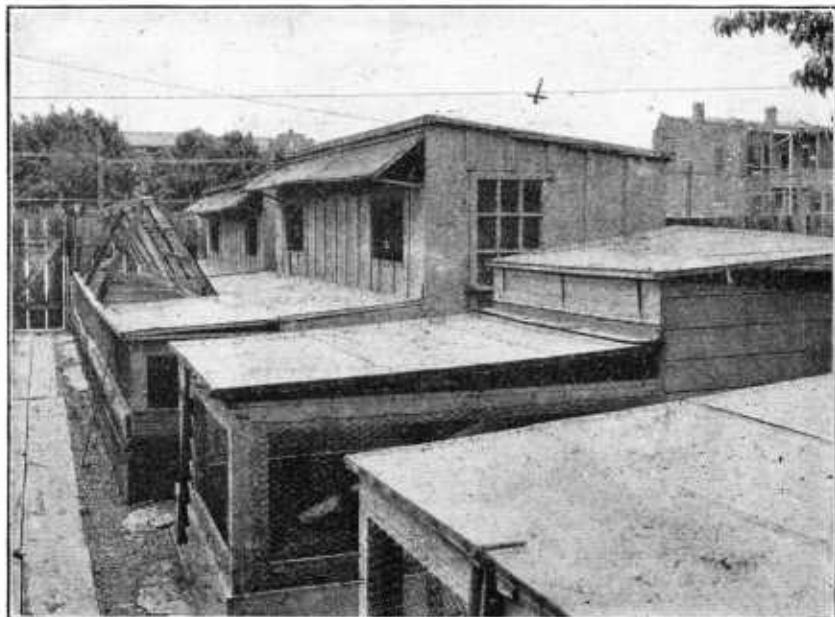


FIG. 14.—An intensive back-yard poultry plant. Practically the entire back yard is occupied by houses and covered runs, and about 70 hens are carried. In addition, chickens are raised here. Each house is 6 by 14 feet, divided into two pens with a covered yard of the same size. Each pen carries about 15 hens. The houses are raised from the ground so that the hens can run under them. The soil in the runs is renewed four times a year. A flock of 13 hens in one of these pens laid 2,163 eggs in a year. Oats are sprouted in the cellar of the dwelling house for green feed.

as the extra eggs produced from good feeding are the ones which really return a profit. Many back-yard flocks are underfed. A light feed of grain, about two-thirds of a pint to 25 hens, in the morning is all that is necessary when considerable table scrap is fed during the day, but a heavy feed of grain, about  $2\frac{1}{2}$  pints to 25 hens, should be given at night. By scattering this grain in the litter on the floor the hens will be compelled to scratch in order to find the grain, and in this way to take exercise, which is decidedly beneficial to them. In addition, the dry mash should be kept before the hens, as noted under the heading "Feeding." If only a small quantity of table scrap is used, so that the hens eat it up quickly, the dry-mash hopper should be kept open all the time and more grain fed.

**Water.**—A plentiful supply of clean, fresh water must always be available to the hens. The fowls drink freely, especially when laying heavily, and should not be stinted in the supply. The water pan or dish should be kept clean. If it is not washed out frequently a green slime will gather on its inner surface. It is well to keep the water pan outside the house in the shade in summer, but in freezing weather it is best to keep the pan in the house and to empty it each night. It should be raised about a foot above the floor so that the hens will not scratch litter into it.

**Use of artificial light.**—Artificial lights help stimulate egg production from pullets in the fall and winter when eggs are highest in price. Where electric lights can be installed at small expense or



FIG. 15.—Inclosure for hen and chicks with box used as a coop at the end. Both coop and run are moved each day to a fresh spot of ground.

by the owner, they are worth considering when 50 or more pullets are kept. Ordinarily the back-yard poultry keeper would not have a sufficient number of pullets to make the cost of installing electric lights worth while.

#### LICE AND MITES.<sup>2</sup>

**Dust bath.**—If the best results are to be expected from the flock, the hens must not be allowed to become overrun with lice or the house with mites. Usually there is a place in the yard where the hens can dust themselves in the dry dirt. In the absence of such a place, a

<sup>2</sup> For further information on the subject of poultry lice and mites and their control the reader is referred to Farmers' Bulletin 801, *Mites and Lice on Poultry*, by F. C. Blshopp and H. P. Wood, of the Bureau of Entomology. Copies of this bulletin may be obtained free on application to the Division of Publications, United States Department of Agriculture.

box about 2 feet square and containing ordinary road dust or fine dirt should be placed in the house. A dust bath aids the hens in keeping lice in check and therefore adds to their comfort. If they are not able to keep them in check by dusting themselves, other measures can be taken.

**Lice.**—To rid the hens of lice, each one can be treated by placing small pinches of sodium fluorid, a material which can be obtained at most large drug stores, among the feathers next to the skin—one pinch on the head, one on the neck, two on the back, one on the breast, one below the vent, one at the base of the tail, one on each thigh, and one scattered on the underside of each wing when spread. Two applications a year are sufficient, and one yearly application may be all that is necessary.

**Mites.**—Mites are more troublesome and more harmful than lice. They do not live upon the birds, like the lice, but during the day hide in the cracks and crevices of the roosts and walls of the house, and at night they come out and get upon the fowls. They suck the hen's blood, and if allowed to become plentiful—as they certainly will if not destroyed—will seriously affect her health and consequently her ability to lay eggs. They may be eradicated by a few thorough applications of kerosene or some of the coal-tar products which are sold for this purpose, or crude petroleum, to the interior of the poultry house. The commercial coal-tar products are more expensive but retain their killing power longer, and the cost of treatment may be lessened by reducing with an equal part of kerosene. Commercial carbolineum, which consists essentially of a high-grade anthracene oil derived from coal tar, has proved very effective. The killing power of this substance lasts for several months, and mites which may be inclined to come in from other buildings are repelled for a long time. Crude petroleum will spray better if thinned with 1 part of kerosene to 4 parts of the crude oil. Both the crude petroleum and the coal-tar products often contain foreign particles, so should be strained before attempting to spray. One must be sure that the spray reaches all the cracks and crevices, giving especial attention to the roosts, dropping boards, and nests, and the treatment should be repeated two or three times at intervals of a week or 10 days.

### **HATCHING AND RAISING CHICKS.**

Where it is advisable to attempt to renew the poultry flock by hatching and rearing chicks, or by purchasing and rearing day-old chicks, previous experience in the raising of chickens increases the chances of success. However, the land available is usually small in area, and it is not advisable to raise chicks unless a plot can be provided separately from that to which the hens have access, and upon which there is grass, or unless a supply of green feed can be furnished. Where these conditions do not exist, it is better to kill the hens as soon as they have outlived their usefulness and replace them by well-matured pullets in the fall. Where it is found desirable to hatch and rear a few chicks this can usually be done best with hens. When day-old chicks are purchased to rear and no hens are available for the purpose a stove brooder or hovers may be used. A stove brooder is profitable if 200 or more day-old chicks are

bought or hatched at one time, but for smaller flocks the hovers are preferable. Full directions for brooding chickens are given in Farmers' Bulletin 624.<sup>3</sup>

The hatching should be done early in the spring and should be completed if possible by the first of May. Chicks hatched before that time will have a good chance to mature and be in laying condition as pullets before the cold weather of fall sets in, and should in consequence be producers during the entire fall and winter. Early hatched chicks are also easier to raise, as they live and thrive better than those which are still small when the hot weather begins. Persons desiring to hatch and raise chicks are referred to Farmers' Bulletins 585, Natural and Artificial Incubation of Hens' Eggs, and 624, Natural and Artificial Brooding of Chickens.<sup>3</sup>

### CULLING THE HENS.

In any flock some hens will be found to be much better producers than others. Often there are a few hens which are such poor producers that they are unprofitable. Where the flock is comparatively small, the owner is often able to determine by observation which hens are the poor layers; these should be the ones to eat.

As a rule hens of the general-purpose breeds are not profitable layers after they are 2 years old, and Leghorn hens rarely lay profitably after three laying years. Many of the hens should be culled before they reach these ages.

All hens molt in the fall or early winter. During this molting season, which usually takes about three months, the hens lay few or no eggs. It is advisable, if well-matured pullets can be purchased at a reasonable price, to kill and eat the hens as they begin to molt, replacing them with pullets. The hens should not be killed, however, until they begin to molt and their combs begin to lose size, color, and flexibility, for if these changes have not taken place the hens will probably still be laying when eggs are especially valuable.

Detailed directions how to cull out the hens which are not laying are given in Farmers' Bulletin 1112, Culling for Eggs and Market.

### PRESERVING EGGS.

A small flock of hens, even five or six, may produce eggs enough during the greater part of the year to supply the needs of a medium-sized family. Where a larger flock is kept, there will be a time during the spring and early summer when more eggs are produced than are used. These surplus eggs can either be sold or, what is perhaps more desirable, preserved in the spring for home use during the fall and early winter, when eggs are high in price and much more difficult to obtain from the flock.

The eggs to be preserved must be fresh. They should be put into the preserver on the day on which they are laid. The eggs should be clean, but it is better not to wash them. Eggs with dirty shells can be used for immediate consumption and the clean eggs preserved. Cracked eggs or those with thin or weak shells should never be used

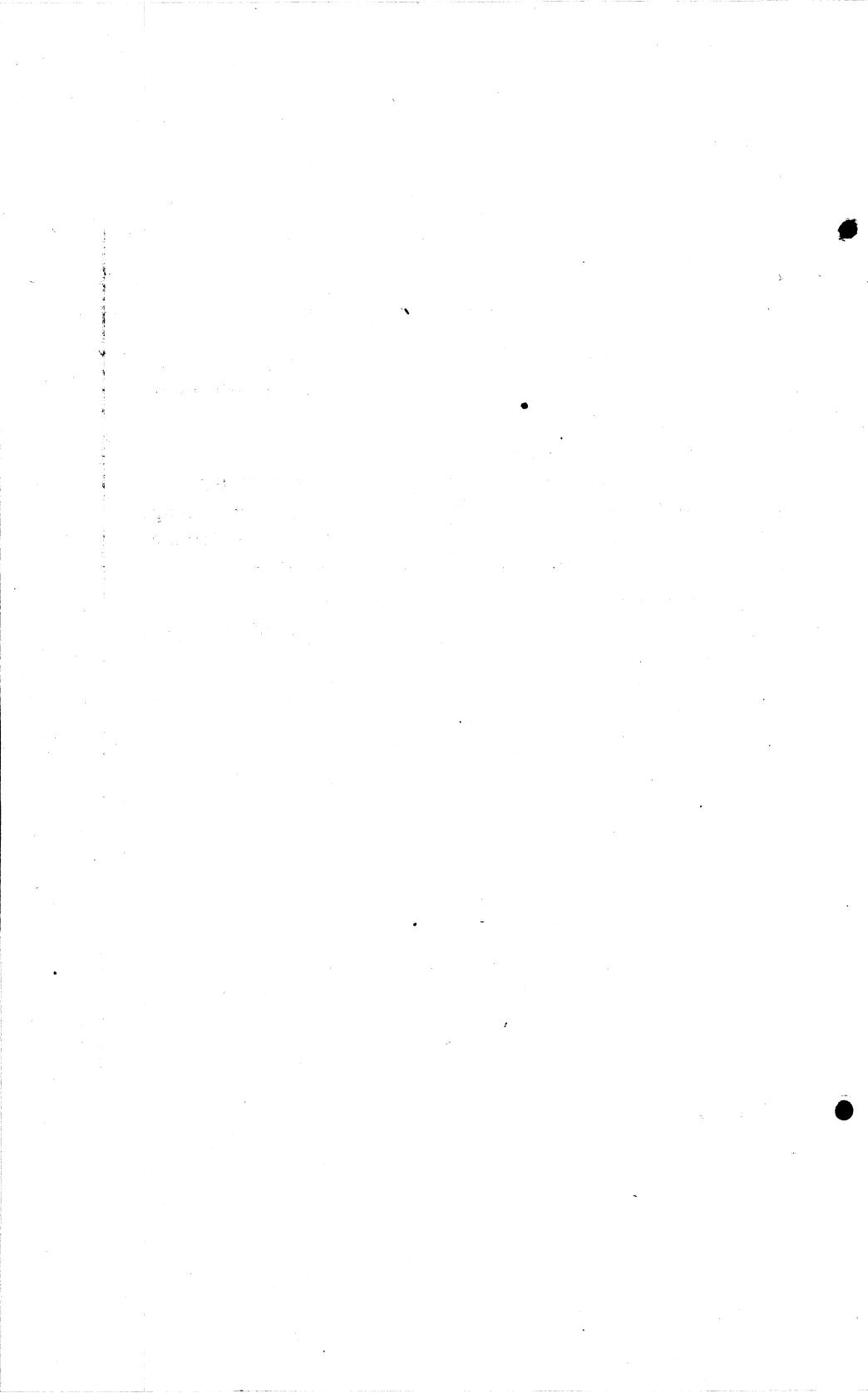
<sup>3</sup> Copies of these publications may be obtained free from the Division of Publications, United States Department of Agriculture.

for preservation. Not only will the cracked egg itself spoil, but it will cause many of the other eggs packed in the same jar with it to spoil as well.

**Water glass.**—One of the best methods of preserving eggs is by the use of water glass. This material can be purchased by the quart from the druggist or poultry-supply men. It is a pale yellow, odorless, sirupy liquid. It should be diluted in the proportion of 1 part of water glass to 9 parts of water which has been boiled and allowed to cool. Earthenware crocks or jars are the best containers for the purpose, since they have a glazed surface and are not subject to chemical action from the solution. Galvanized ash cans or large pails are suitable for preserving eggs with water glass but do not work satisfactorily with limewater. The crocks or cans should be scalded out, so that they will be perfectly clean, and allowed to cool before they are used. A 6-gallon container will accommodate 18 dozen eggs and will require about 22 pints of solution. Too large containers are not desirable, since they increase the liability of breaking some of the eggs. Half fill the container with the water-glass solution and place the eggs in it. Eggs may be added from day to day as they are obtained, until the container is filled. Be sure that the eggs are covered with about 2 inches of water-glass solution. Cover the container and place it in a cool place, where it will not have to be moved. It should be looked at from time to time to see that not enough of the water has evaporated so that the eggs are too near the surface. If there seems to be any danger of this, sufficient cool boiled water should be added to keep them covered.

Remove the eggs from the solution as desired for use and rinse them in clean, cold water. Before boiling such eggs prick a tiny hole in the large end of the shell with a needle, to keep them from cracking. As the eggs age the white becomes thinner and is harder to beat. The yolk membrane becomes more delicate, and it is correspondingly difficult to separate the whites from the yolks.

**Limewater.**—Limewater is also satisfactory for preserving eggs and is less expensive than water glass. A solution is made by placing 2 pounds of unslaked lime in 5 gallons of water which has been boiled and allowed to cool, and allowing the mixture to stand until the lime settles and the liquid is clear. The eggs should be placed in a clean earthenware jar or other suitable vessel and covered to a depth of 2 inches with the liquid. Remove the eggs as desired, rinse in clean, cold water, and use immediately.



## PRACTICAL POINTERS.

Keep the hens confined to your own land.

Don't keep a male bird. Hens lay just as well without a male.

Don't overstock your land.

Purchase well-matured pullets rather than hens.

Don't expect great success in hatching and raising chicks unless you have had some experience and have a grass plot separate from the yard for the hens.

Build a good house or shelter.

Make the house dry and free from drafts, but allow for ventilation.

Fowls stand cold better than dampness.

Keep house and yard clean.

Provide roosts and dropping boards.

Provide a nest for each four or five hens.

Grow some green crop in the yard.

Spade up the yard frequently.

Feed table scraps and kitchen waste.

Also feed grain once or twice a day.

Feed a dry mash.

Keep hens free from lice and the house free from mites.

In the fall, kill and eat any hens that cease to lay.

Preserve the surplus eggs produced during the spring and summer for use during the fall and winter when eggs are scarce and high in price.

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